

Trend Study 17-33-97

Study site name: Maple Canyon.

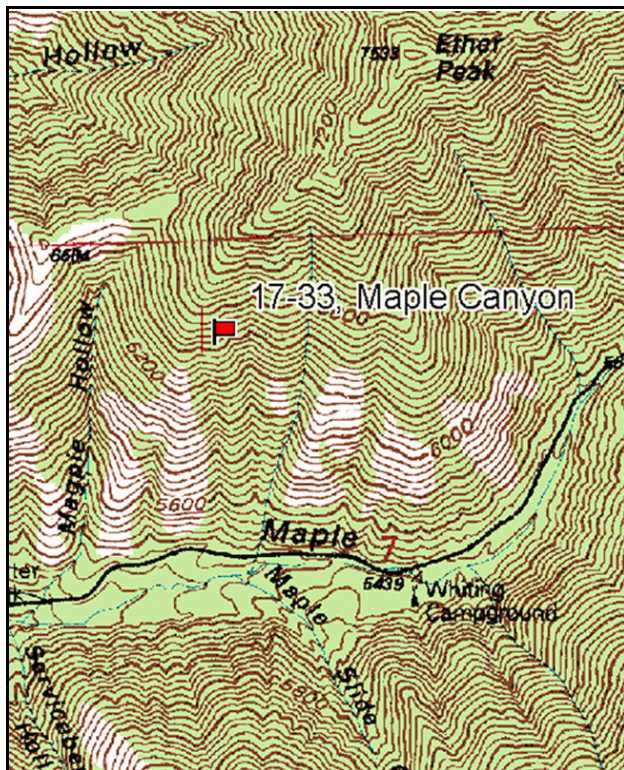
Vegetation type: Gambel Oakbrush.

Compass bearing: frequency baseline 345 degrees magnetic (line 2 @ 246°M).

Frequency belt placement: line 1 (11, 34 & 71ft), line 2 (59 & 95ft).

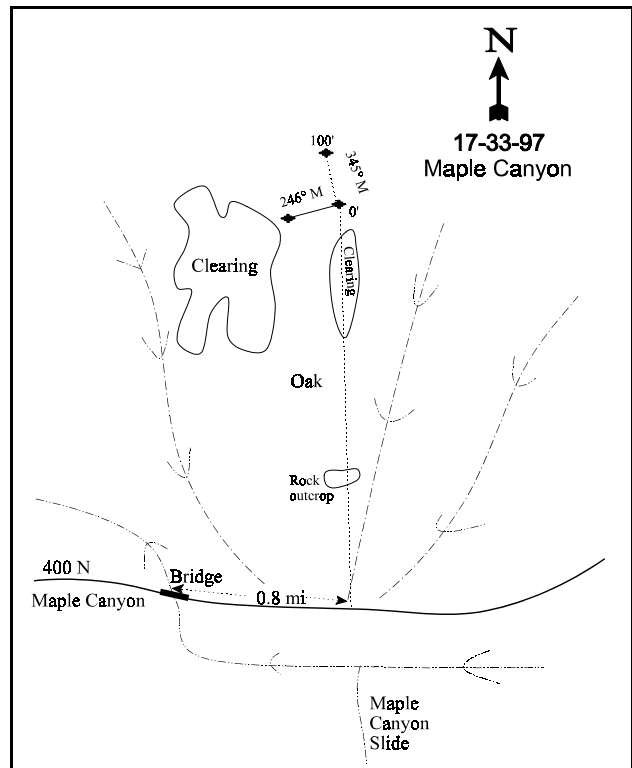
LOCATION DESCRIPTION

From Mapleton, proceed east up Maple Canyon (400 North) to the first bridge across Maple Creek. From the bridge, proceed an additional 0.80 miles and stop just north of the Maple Canyon Slide. From this point, to the north and upslope is a long clearing within the oakbrush type which runs upslope. From the upper (northern) edge of the clearing, the 0-foot baseline stake is located just inside the edge of the oakbrush. The study is marked by green steel "T" fenceposts approximately 12 to 18 inches in height. A red browse tag, number 3919, is attached to the 0-foot baseline stake.



Map Name: Springville

Township 8S, Range 4E, Section 7



Diagrammatic Sketch

GPS: NAD 27, UTM 12S 4442887 N, 454606 E

DISCUSSION

Maple Canyon - Trend Study No. 17-33

***SUSPENDED - This site was suspended in 2002.

This study samples winter range in Maple Canyon. Downslope and down-canyon from the study site, the spur ridges extending to Maple Creek are relatively barren, eroded, and occupied mainly by annual grasses, annual forbs, and low value perennials. Browse occurs only as remnants, primarily in the draws. The study is located approximately 800 vertical feet above the canyon bottom at an elevation of 6,400 feet. Exposure is southerly on a steep (60-65%) slope. The range type is mixed mountain brush. When the site was read in 1997, the location was considered poor for sampling critical winter range due to lack of preferred browse. Further east or down slope are areas with higher densities of Stansbury cliffrose and mahogany that would more accurately reflect range condition and trend with respect to wildlife.

Soil texture is characterized by an abundance of variable-sized sandstone or shale rock. Analysis indicates a loam soil with a neutral pH (6.7). The soil is moderately shallow and loose with abundant rock on the surface. Many of the depleted slopes and ridges below the study site have essentially no remaining surface soil. In these areas, near talus conditions often prevail. However, the site has more vegetative and litter cover with soil condition being measurably better but still substandard. There is little bare soil currently present with vegetative and litter cover adequate to slow erosion.

The principal browse species includes an abundance of low-growing (average height 30 inches) Gambel oak, smaller amounts of true mountain mahogany, and infrequent individuals of Saskatoon serviceberry, mountain big sagebrush, and broom snakeweed. With the greatly increased sample size used in 1997, the estimated density of Gambel oak is 7,040 stems/acre. In 1983, considerable temporary defoliation by grasshoppers and a large caterpillar was noted. Vigor was good in 1997. Estimated density of true mountain mahogany was 100 plants/acre in 1997. These plants exhibit heavy hedging, yet good vigor. Broom snakeweed was sampled for the first time on this site in 1997. This is due mostly to the increased sample size. Estimated density was 360 plants/acre, most of which were classified as mature.

Grasses are dominated by cheatgrass. It is found in nearly every quadrat (99%) and contributes to 63% of the total herbaceous understory cover. Additional annual grasses include rattlesnake brome and Japanese brome. Other infrequent grasses include bulbous bluegrass, muttongrass, Sandberg bluegrass, and Kentucky bluegrass. In 1983, intermediate wheatgrass and western wheatgrass were identified, but have not been sampled since.

Forb diversity is higher than reported in the past, although most of the species are infrequent. The most valuable and preferred species are arrowleaf balsamroot, and yellow salsify.

1983 APPARENT TREND ASSESSMENT

Soil trend appears to be slowly declining, especially at the lower edge of this type. Although vegetative cover is fair, the amount of exposed rock and bare soil suggests that smaller soil particles are actively moving downslope. Vegetative condition is fair. Gambel oak appears to be increasing on the site while other desirable browse species are lacking. Understory forbs and grasses are limited by dry soil conditions. There is an overabundance of annual vegetation which suggests an unacceptably high level of soil disturbance. Deer utilization of the area is intense and occurs primarily in winter with some evidence of spring-fall use.

1989 TREND ASSESSMENT

The very steep slope on this sidehill encourages continued soil and rock movement. As noted in 1983, conditions are near talus. Ground cover calculations indicate an increase in rock and pavement cover from 28% to 38%. Cover of bare ground has declined from 19% to 10%. There is little preferred browse on the site but trend is stable. Gambel oakbrush is the only common browse species. It has remained stable in density, shows light to moderate use, good vigor and low decadence. Trend for the herbaceous understory is down slightly. Sum of nested frequency for perennial grasses was already low and shows a decline. Perennial forbs have also declined slightly. The herbaceous trend is due primarily to drought in 1989.

TREND ASSESSMENT

soil - up slightly (4)

browse -stable (3)

herbaceous understory - down slightly (2)

1997 TREND ASSESSMENT

Soil trend is stable. Vegetation and litter provide adequate cover to protect from significant erosion. Very little bare soil is present at this time. Browse has stayed relatively the same over all years. The changes in density for species is more due to the greatly increased sample size rather than any changes in the community. Utilization of Gambel oak continues to be light to moderate with heavy utilization of true mountain mahogany. The browse trend at this time is stable. Herbaceous understory trend is down slightly. Perennial species are rare and the site is dominated by cheatgrass. Nested frequency for bluebunch wheatgrass and mutton bluegrass have declined significantly.

TREND ASSESSMENT

soil - stable (3)

browse - stable (3)

herbaceous understory - down slightly (2)

HERBACEOUS TRENDS --

Herd unit 17, Study no: 33

Type	Species	Nested Frequency			Quadrat Frequency			Average Cover %
		'83	'89	'97	'83	'89	'97	
G	Agropyron intermedium	6	-	-	3	-	-	-
G	Agropyron smithii	_b 17	_a -	_a -	6	-	-	-
G	Agropyron spicatum	_a 86	_b 105	_a 37	36	41	14	.80
G	Bromus brizaeformis (a)	-	-	25	-	-	10	1.02
G	Bromus japonicus (a)	-	-	1	-	-	1	.00
G	Bromus tectorum (a)	-	-	335	-	-	99	23.73
G	Poa bulbosa	-	-	9	-	-	6	.48
G	Poa fendleriana	_c 92	_b 46	_a 14	41	22	5	.72
G	Poa pratensis	-	-	5	-	-	2	.03
G	Poa secunda	_a -	_a 2	_b 19	-	1	8	.66
Total for Annual Grasses		0	0	361	0	0	110	24.77
Total for Perennial Grasses		201	153	84	86	64	35	2.70
Total for Grasses		201	153	445	86	64	145	27.47

Type	Species	Nested Frequency			Quadrat Frequency			Average Cover %
		'83	'89	'97	'83	'89	'97	'97
F	Agoseris glauca	_b 22	_a -	_a -	10	-	-	-
F	Alyssum alyssoides (a)	-	-	47	-	-	20	.71
F	Allium spp.	13	6	2	6	4	2	.01
F	Artemisia ludoviciana	4	15	5	2	6	2	.18
F	Astragalus spp.	2	-	-	1	-	-	-
F	Balsamorhiza sagittata	15	2	12	5	2	6	3.78
F	Camelina microcarpa (a)	-	-	5	-	-	3	.01
F	Calochortus nuttallii	_c 25	_a -	_b 12	13	-	4	.67
F	Cirsium undulatum	2	-	3	1	-	1	.70
F	Collomia linearis (a)	-	-	1	-	-	1	.00
F	Cruciferae	-	-	25	-	-	14	.32
F	Cryptantha spp.	-	-	25	-	-	12	.30
F	Descurainia pinnata (a)	-	-	12	-	-	5	.05
F	Epilobium brachycarpum (a)	-	-	5	-	-	2	.01
F	Erodium cicutarium (a)	-	-	3	-	-	2	.06
F	Erigeron divergens	5	2	-	2	1	-	-
F	Galium aparine (a)	-	-	28	-	-	14	.94
F	Lappula occidentalis (a)	-	-	8	-	-	5	.02
F	Lactuca serriola	_a -	_b 10	_b 10	-	5	5	.21
F	Lithospermum incisum	3	-	-	1	-	-	-
F	Lomatium spp.	_b 46	_b 45	_a 24	25	25	11	1.38
F	Phlox longifolia	_a -	_a -	_b 8	-	-	4	.04
F	Sisymbrium altissimum (a)	-	-	-	-	-	-	.15
F	Tragopogon dubius	_b 14	_a -	_b 24	7	-	11	.18
F	Unknown forb-perennial	_a -	_b 9	_b 14	-	5	5	.25
Total for Annual Forbs		0	0	109	0	0	52	1.96
Total for Perennial Forbs		151	89	164	73	48	77	8.06
Total for Forbs		151	89	273	73	48	129	10.03

Values with different subscript letters are significantly different at alpha = 0.10 (annuals excluded)

BROWSE TRENDS --

Herd unit 17 , Study no: 33

Type	Species	Strip Frequency	Average Cover %
		'97	'97
B	Cercocarpus montanus	5	1.40
B	Gutierrezia sarothrae	11	.56
B	Quercus gambelii	65	19.96
Total for Browse		81	21.93

CANOPY COVER --

Herd unit 17 , Study no: 33

Species	Percent Cover '97
Cercocarpus montanus	3.4

BASIC COVER --

Herd unit 17 , Study no: 33

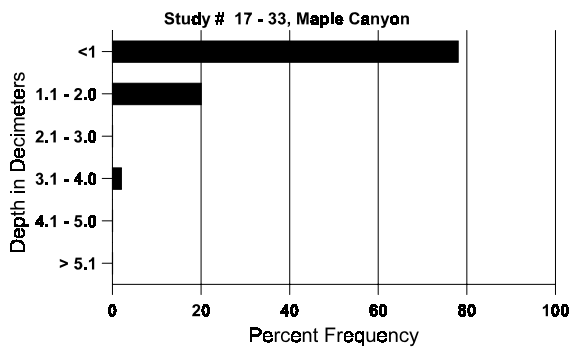
Cover Type	Nested Frequency '97	Average Cover %		
		'83	'89	'97
Vegetation	349	1.00	4.25	50.90
Rock	276	24.50	33.00	23.09
Pavement	126	3.00	5.25	2.08
Litter	379	52.75	47.50	44.56
Cryptogams	3	.25	0	.03
Bare Ground	116	18.50	10.00	3.98

SOIL ANALYSIS DATA --

Herd Unit 17, Study no: 33, Maple Canyon

Effective rooting depth (in)	Temp °F (depth)	pH	%sand	%silt	%clay	%OM	PPM P	PPM K	dS/m
12.7	47.0 (17.3)	6.7	41.8	32.4	25.8	2.6	12.8	217.6	.6

Stoniness Index



PELLET GROUP FREQUENCY --

Herd unit 17 , Study no: 33

Type	Quadrat Frequency '97
Elk	9
Deer	2

BROWSE CHARACTERISTICS --

Herd unit 17 , Study no: 33

A Y G R E		Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.			Total			
		1	2	3	4	5	6	7	8	9	1	2	3	4								
Cercocarpus montanus																						
M	'83	-	-	-	-	-	-	1	-	-	1	-	-	-	66	67	138	1				
	'89	-	-	-	-	-	-	1	-	-	1	-	-	-	66	126	118	1				
	'97	-	1	3	-	-	1	-	-	-	5	-	-	-	100	80	96	5				
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>											
		'83			00%			00%			00%			+ 0%								
		'89			00%			00%			00%			+34%								
		'97			20%			80%			00%											
Total Plants/Acre (excluding Dead & Seedlings)															'83	66	Dec:	-				
															'89	66		-				
															'97	100		-				
Gutierrezia sarothrae																						
Y	'83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0				
	'89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0				
	'97	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1				
M	'83	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0				
	'89	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0				
	'97	17	-	-	-	-	-	-	-	-	17	-	-	-	340	13	15	17				
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>											
		'83			00%			00%			00%											
		'89			00%			00%			00%											
		'97			00%			00%			00%											
Total Plants/Acre (excluding Dead & Seedlings)															'83	0	Dec:	-				
															'89	0		-				
															'97	360		-				

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Quercus gambelii																		
S	83	17	-	-	-	-	-	-	-	-	6	11	-	-	1133			17
	89	9	-	-	-	-	-	-	-	-	9	-	-	-	600			9
	97	10	-	-	2	-	-	-	-	-	12	-	-	-	240			12
Y	83	30	12	-	-	-	-	-	-	-	36	6	-	-	2800			42
	89	121	60	-	-	-	-	-	-	-	181	-	-	-	12066			181
	97	47	-	-	2	-	-	-	-	-	49	-	-	-	980			49
M	83	7	80	56	-	-	-	1	-	-	114	30	-	-	9600	39	19	144
	89	14	2	1	-	-	-	3	-	-	20	-	-	-	1333	94	53	20
	97	214	80	-	-	-	-	-	-	-	294	-	-	-	5880	30	24	294
D	83	-	-	1	-	-	-	5	-	-	5	-	1	-	400			6
	89	4	1	-	-	-	-	-	-	-	1	-	3	1	333			5
	97	3	5	-	1	-	-	-	-	-	6	-	1	2	180			9
X	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	900			45
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'83		48%			30%			.52%			+ 7%							
'89		31%			.48%			.02%			-49%							
'97		24%			00%			.85%										
Total Plants/Acre (excluding Dead & Seedlings)												'83	12800	Dec:	3%			
												'89	13732		2%			
												'97	7040		3%			